



**LS 600h L**

**HYBRID OVERVIEW**



## Lexus Hybrid Drive Quick Facts:

***“Gives more to the driver, takes less from the world.”***

- The Lexus LS 600h L is powered by Lexus Hybrid Drive that combines the advantages of electric motor/generators and a gasoline engine.
- The Lexus LS 600h L does not need to be plugged in like an electric car. Lexus Hybrid Drive automatically charges itself.
- The Lexus LS 600h L hybrid drive provides the high level of performance associated with Lexus, along with an improved city gas mileage rating and reduced emissions when compared to the LS 460 L.
- The Lexus LS 600h L offers the high level of quality and luxury features that is expected from a Lexus vehicle.

**We invite you to discover more about the exciting Lexus LS 600h L and Lexus Hybrid Drive in the pages of this booklet. For further details, contact your dealership, see the vehicle *Owner's Manual* and other owner information materials in the vehicle, or log onto [www.lexus.com](http://www.lexus.com).**



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## Driving the LS 600h L

On the whole, driving the LS 600h L is not very much different from driving a conventional vehicle. However, there are some subtle differences you will notice.

- **Pressing the “POWER” button starts the vehicle, but may not start the engine.**  
To start the LS 600h L press and hold the brake pedal, then press the “POWER” button. After a few seconds, the “READY” light in the center of the instrument cluster will come on. Once the “READY” light comes on, place the transmission lever into the desired position and start driving. When accelerating slowly, the LS 600h L can drive at low speeds on electric power alone, so the gasoline engine may not start for a while depending upon the need.
- **The transmission will feel different.**  
The LS 600h L uses an Electronically-controlled Continuously Variable Transmission (ECVT) with an advanced low and high range torque multiplication device. The transmission does not shift with fixed gear ratios like a conventional transmission, so it delivers power efficiently and smoothly.
- **The brakes may feel different.**  
The LS 600h L features an advanced, electronically-controlled brake-by-wire system. This system controls both the regenerative braking system and the conventional braking system. As a result, the brakes may feel different from a conventional vehicle.
- **The engine will turn off and on while you drive.**  
The engine will automatically turn on and off as needed. At medium or high speeds, it is normal for the engine to be on most of the time. At low speeds or when stopped, the engine may or may not be on, depending on the need.
- **You will notice different sounds while driving.**  
The engine sound will be more steady than a conventional vehicle when accelerating due to the smooth operation of the ECVT. It is also normal for the new technology of the Lexus Hybrid Drive to make a “whirring” sound while driving.

**⚠ CAUTION:** While driving a hybrid vehicle, pay special attention to the area around the vehicle. Because there is little vehicle noise in electric-only mode, pedestrians, people riding bicycles or other people and vehicles in the area may not be aware of the vehicle starting off or approaching them, so take extra care while driving.

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## Driving the LS 600h L (continued)

- **Some parking attendants may not be familiar with the LS 600h L.**

To properly operate the vehicle, these basic tips are important:

1. Press and hold the brake pedal, then press the "POWER" button.
2. Begin driving when "READY" light stays on.
3. The engine will start and stop automatically.

New LS 600h L vehicles come with parking attendant key ring tabs, with these tips in English and Spanish.

- **When refueling, the fuel door may take a few moments to open.**

As part of emissions system operation, it may take up to 15 seconds for the fuel door to automatically release after the release button is pressed. The Multi-information Display in the instrument cluster will display "Refuel Ready" when the door releases.

- **Running out of fuel.**

Do not run your LS 600h L out of fuel. The LS 600h L is not designed to be operated with the fuel tank empty. If you try to start the LS 600h L with the fuel tank empty, the hybrid system may become disabled on the third attempt. If you continue to drive with the fuel tank empty, the hybrid battery will rapidly discharge and the vehicle will shut down. If you run out of fuel, immediately pull over to a safe location and turn off the vehicle. Be sure to add fuel before attempting to restart the vehicle or continuing to drive.

**Hybrid Battery cooling vents.**

Do not block the hybrid battery cooling vents located below the rear window with any items. Doing so could cause overheating of the hybrid battery.

- **Maintaining charge for your 12-volt battery.**

The following will help keep your vehicle's 12-volt battery fully charged:

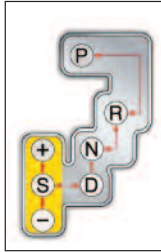
Drive vehicle at least weekly. Operate accessories with vehicle in "READY" mode. When parking, make sure doors and trunk are closed and lights are turned off.

- **Long-term parking.**

If the vehicle has been parked for a long time, the 12-volt and the hybrid battery will discharge gradually. For parking longer than about 30 days, charging of the 12-volt battery may be required. Your Lexus dealer has details. To keep the hybrid battery in good condition, drive the vehicle at least once every several months for at least 30 minutes or ten miles. If the hybrid battery becomes fully discharged and the vehicle will not start, even with a jump start to the 12-volt battery, contact your Lexus dealer.

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## Driving the LS 600h L (continued)

**What you can expect from your LS 600h L:****• Responsive and smooth performance**

The "D" transmission range is used for performance, normal, or economical driving. Only use the "S" transmission ranges if needed to help maintain vehicle speed when going down steep grades. The lower the range, the greater the engine braking force.

**• Driver-adjustable performance, the "PWR-Hybrid-SNOW" switch**

The "PWR-Hybrid-SNOW" switch located on the center console has three modes:

Set to "Hybrid PWR" for increased responsiveness. Once set, it will remain in this mode.

Set to "Hybrid" Normal (center position) for balanced performance and economy. Once set, it will

remain in this mode. Toggle to "Hybrid SNOW" for more controlled acceleration on slippery surfaces. It will remain in this mode until the vehicle is turned off.

**• Driver-selectable "EV" drive mode switch**

In EV drive mode, the electric motor, powered by the hybrid battery, is used to drive the vehicle. This mode allows you to drive without concern for gas emissions.

It may not be possible to select EV drive mode in the following situations:

- The temperature of the hybrid system is low or high, or if the engine is warming up.
- The hybrid battery is low (level 3 or less).
- Vehicle speed is about 25 mph or more.
- The accelerator pedal is depressed firmly or the vehicle is on a hill, etc.
- The windshield defogger is in use.

Possible driving distance is up to about 1/2 mile at low speeds. This may also depend on the hybrid battery level and driving conditions.

Notes: If "EV" mode cannot be turned on, a buzzer will sound and a message will be shown on the multi-information display. Operating the vehicle in EV mode will not increase overall fuel economy.

## The Benefits of Lexus Hybrid Technology



### Impressive Performance

- Lexus hybrid vehicles deliver impressive throttle response, even from a standing start. This is because the electric motors deliver maximum torque instantly.
- The Lexus Hybrid Drive system combined with the ECVT (Electronically controlled Continuously Variable Transmission) helps deliver smooth, seamless acceleration for excellent passing performance and drivability.

### Low Levels of Noise, Vibration and Harshness (NVH)

- Since Lexus hybrid vehicles can operate on electric power only during start-up and lower speeds, the vehicle interior NVH level is about half that of conventional gasoline-powered vehicles.
- The gasoline engine does not have to be turned on in order for the electric air conditioner in Lexus hybrid vehicles to operate.
- The Electric Power Steering (EPS) system eliminates the hydraulic pump associated with steering noise and vibration.
- The ECVT eliminates the hesitation and noise level associated with shifting between fixed gear ratios.

### Reduced Emissions

- Lexus hybrid vehicles produce **70% fewer smog-forming emissions** than the average new vehicle and are certified as an SULEV (Super Ultra-Low Emission Vehicle) by the California Air Resources Board.

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## The Benefits of Lexus Hybrid Technology (continued)

- The gasoline engine is turned off much of the time during idle and deceleration, which means that zero emissions are being produced.
- The gasoline engine can be smaller in size than non-hybrid vehicles, producing fewer emissions without sacrificing performance.

### Improved Fuel Efficiency

- By combining a hybrid battery, electric motors and engine, the Lexus Hybrid Drive system is able to reduce fuel consumption, while still delivering ample power for all types of driving situations.
- The LS hybrid delivers an improved city gas mileage rating.\*
- Fuel consumption is zero when the engine is turned off and the vehicle is operating in electric only mode.

\* Actual mileage may vary.





## EPA Mileage Estimates & Fuel Economy



### Quick Facts - EPA Mileage Estimates

The EPA estimated fuel economy numbers are derived from vehicle testing conducted at the U.S. Environmental Protection Agency's (EPA's) National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. Vehicle manufacturers also submit test results based on strict EPA standardized drive patterns. Each year, the EPA provides the data to the Department of Energy, which publishes the results at [www.fueleconomy.gov](http://www.fueleconomy.gov).

### Some quick facts about EPA estimated fuel economy tests:

Federal law requires EPA estimated fuel economy to be provided on a fuel economy label affixed to the window of every vehicle (see Figure 1). The EPA estimates serve as a useful guide for comparing the relative fuel efficiency of various vehicles and are intended for comparison only. Fuel economy estimates are determined under ideal laboratory conditions following a standardized test determined by federal law. Each vehicle must complete tests simulating a driving routine for:

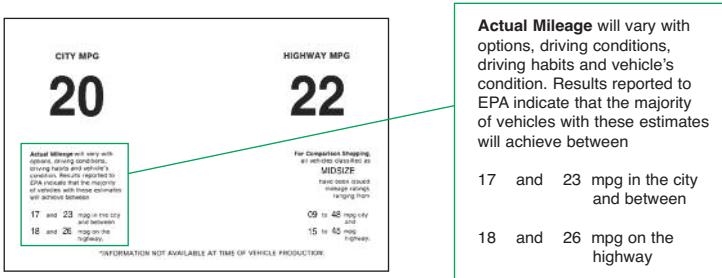
- **City** - Low speeds in stop-and-go urban traffic.
- **Highway** - Free-flow traffic at highway speeds.
- **High Speed** - Higher speeds; harder acceleration and braking.
- **AC** - Air conditioner use under hot ambient conditions.

*(See [www.fueleconomy.gov](http://www.fueleconomy.gov) for further details.)*

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**Typical EPA Mileage Estimate\* data found on vehicle window sticker**

Figure 1.



\*2008 LS 600h L preliminary mileage estimates determined by Lexus. EPA mileage estimates not available at time of printing. Actual mileage may vary.

**Why you may not achieve the EPA estimates**

Because the EPA fuel economy estimates are derived in ideal laboratory conditions, they are just estimates, which may not reflect real world conditions. There are many factors which may cause your actual mileage with the LS 600h L, or other vehicles, to vary from the EPA estimates:

- Quick acceleration and heavy braking may reduce mileage by as much as 33% in highway driving and as much as 5% in city driving.
- Driving at highway speeds above 60 mph.
- Driving on hilly or mountainous terrain and unpaved roads. (EPA tests assume flat roads.)
- Short trips cause the engine to run more as a percentage of driving, as it warms the emissions system.
- Carrying extra weight. (The EPA test assumes only 300 lbs. of passengers and cargo.)
- Cargo racks. (Vehicles are tested without cargo racks, which can increase wind drag.)
- Poor maintenance. (Vehicles tested are in top condition.)
- Some fuels contain less energy than others. Using oxygenated fuels or reformulated gasoline (RFG), for example, can cause a small decrease in fuel economy.

(Source for above information: [www.fueleconomy.gov](http://www.fueleconomy.gov))

## Ten tips for improving fuel economy

The following tips can help you achieve the best possible fuel economy:

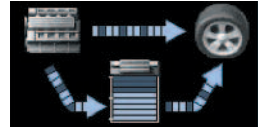
- 1) Plan ahead to combine short trips in order to minimize cold starts.
- 2) Accelerate slowly.
- 3) Avoid heavy braking. Monitor traffic to minimize braking and coast whenever possible.
- 4) Avoid speeds in excess of 60 mph; fuel economy suffers at speeds higher than 60 mph and drops significantly above 70 mph.
- 5) In stop-and-go traffic, accelerate to the desired level then lift off the accelerator pedal allowing the vehicle to run more on electric power.
- 6) Check tire pressure and maintain it at the recommended pressure.
- 7) Avoid carrying unnecessary loads; extra weight reduces fuel economy.
- 8) Use the air conditioner and defroster only as needed.
- 9) Set the driver-adjustable "PWR-Hybrid-SNOW" console switch in the "Hybrid" Normal (center position) and do not operate vehicle in EV mode.
- 10) Drive in the "D" transmission position for best fuel economy. Only use the "S" transmission ranges if needed to help maintain vehicle speed when going down steep grades. The lower the range, the greater the engine braking force.





## Multi-information Display & Monitors

The center instrument cluster **Multi-information Display** shows a simplified representation of the approximate flow of energy within Lexus Hybrid Drive. The display does not show all of the components of the system.

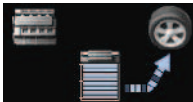


**To show the Energy Monitor display**, press the “DISP” button located on the steering wheel, until you reach the Energy Monitor display. It may be necessary to press the button more than once to reach this display.



**The vehicle is being primarily driven by the engine.**

- The arrow points away from the engine and then to the wheel.
- *The level of hybrid battery charge, circled in red, will be shown by the amount of solid bars within the battery image.*



**The vehicle is being driven by the hybrid battery.**

- The arrow points away from the hybrid battery and then to the wheel.



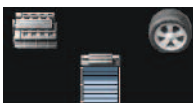
**The vehicle is being driven by both the engine and the hybrid battery.**

- The arrows point away from the hybrid battery and the engine and then to the wheel.



**The vehicle is coasting or slowing down, regenerating electricity and charging the hybrid battery.**

- The arrow points away from the wheel and then to the hybrid battery.



**The vehicle is stopped and the hybrid battery is not being charged.**

- No arrows are displayed.



**Hybrid Battery Low:**



**Hybrid Battery Full:**

- The top bar may not appear except after driving down long mountain grades.

Multi-information Displays & Monitors (continued)

**The Energy Monitor**

The standard Energy Monitor shows a simplified representation of the approximate flow of energy within the hybrid system. The display does not show all of the components of the system. The display is located at the center of the dashboard.

The Energy Monitor display changes as the LS 600h L transitions through different driving conditions. The Energy Monitor display will show the changes in energy and power flow through the system at a given time as the vehicle is driven.

**To access the Energy Monitor,** press the "INFO" button located on the left edge of the display. On the touch screen that appears, touch the "Trip Information" button.



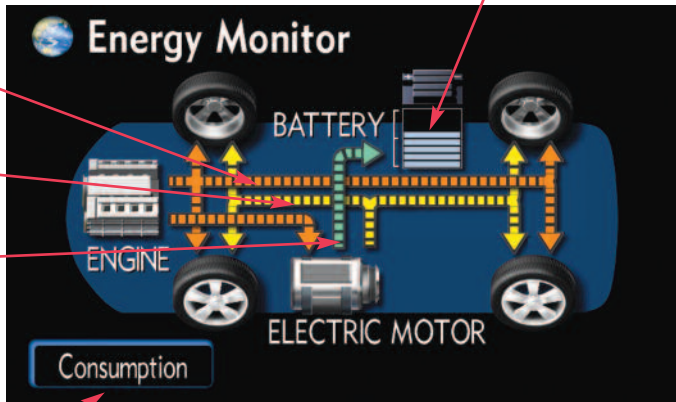
**Energy Monitor description**

Energy flow

Orange = Mechanical drive power

Yellow = Electrical drive power

Green = Electrical / regenerative power



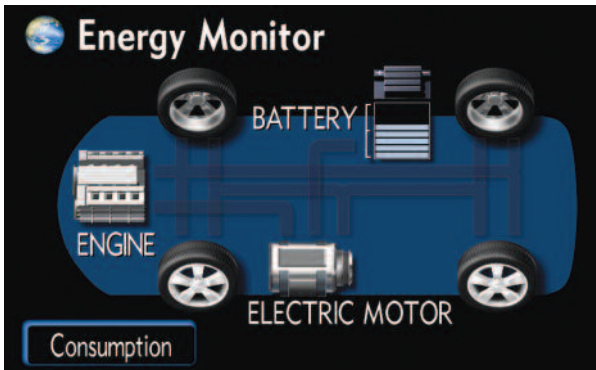
Hybrid battery status.

Press to go to the Consumption Monitor.

- "ELECTRIC MOTOR" represents Electric Starter Motor/Generator (MG1) and Electric Drive Motor/Generator (MG2) together.
- "ENGINE" represents the V8 Gasoline Engine

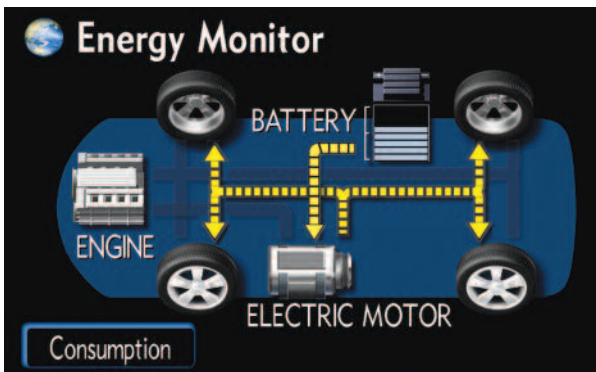
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## Multi-information Displays &amp; Monitors (continued)

**Typical Energy Monitor Displays**

**The vehicle is stopped, the engine is off, and the hybrid battery is not being charged.**

- No arrows are displayed.

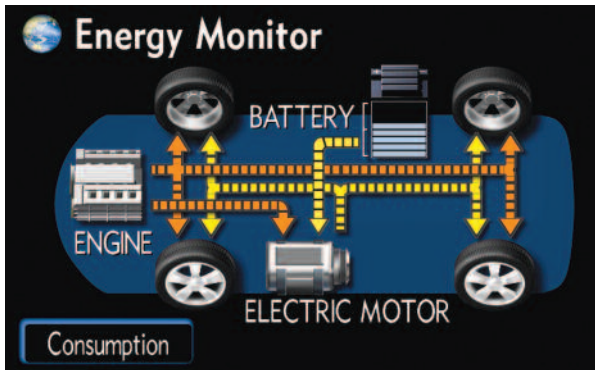


**The vehicle is being driven by the electric motor.**

- The arrows point away from the hybrid battery to the front electric motor and then to the rear wheels.

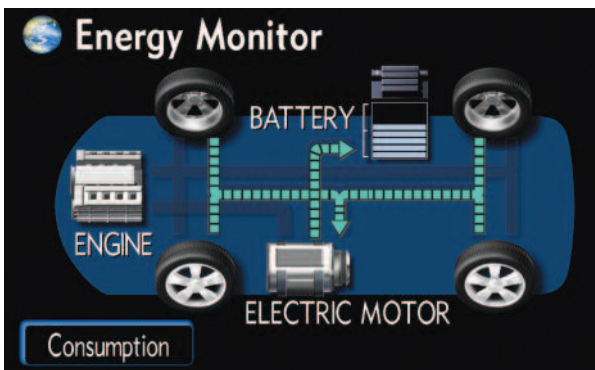
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## Multi-information Displays &amp; Monitors (continued)

**Typical Energy Monitor Displays (continued)**

**The vehicle is being driven by the engine and the electric motor.**

- The arrows point away from the hybrid battery, the engine, and the electric motor and then to the wheels.



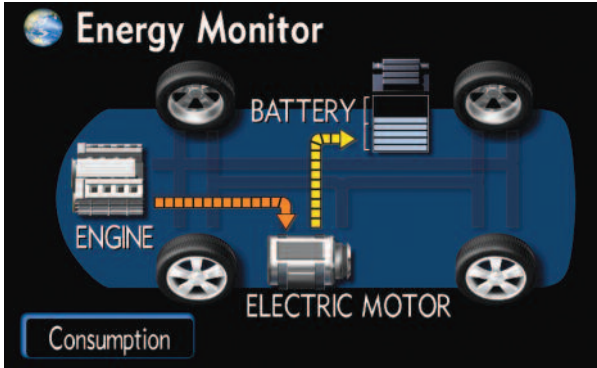
**The vehicle is coasting or slowing down, regenerating electricity and charging the hybrid battery.**

- The arrows point away from the wheels and electric motor and then to the battery.

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Multi-information Displays & Monitors (continued)

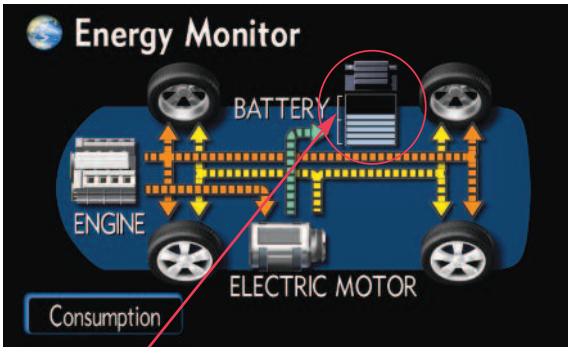
**Typical Energy Monitor Displays (continued)**



**The vehicle is stopped and the engine is charging the hybrid battery.**

- The arrows point from the engine to the electric motor, then to the hybrid battery.

**Hybrid Battery Status information**



Hybrid Battery full.



Hybrid Battery low.

**Battery status indicator** showing five blue bars, indicating battery is at medium charge level.

The approximate amount of electric charge available in the hybrid battery is displayed in one of 8 different levels. Unlike the vehicle fuel gauge, it is normal for the battery status indicator to actively move up and down and change color, depending on driving conditions. The top bar may not appear except after driving down long mountain grades.

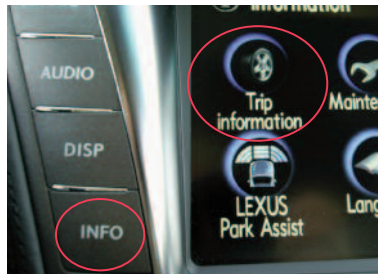
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Multi-information Displays & Monitors (continued)

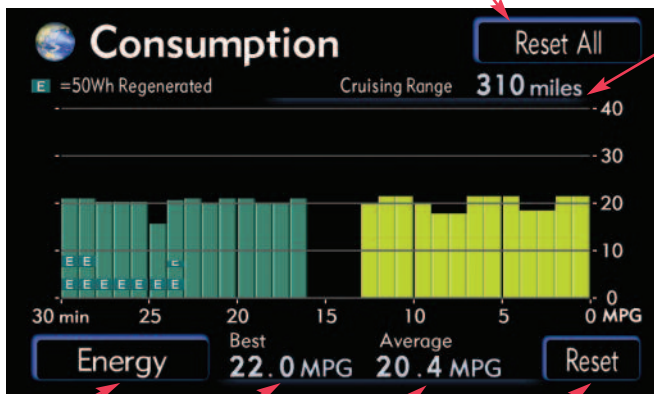
**The Consumption Monitor**

To access the **Consumption Monitor screen**, press the “INFO” button located on the left edge of the center dashboard display. On the touch screen that appears, touch the “TRIP INFO” button.



**The Consumption Monitor description**

Press to clear all data displayed except Cruising Range



Cruising Range Display (see page 16)

Press to go to the Energy Monitor screen

Best MPG Display (see page 15)

Average MPG Display (see page 16)

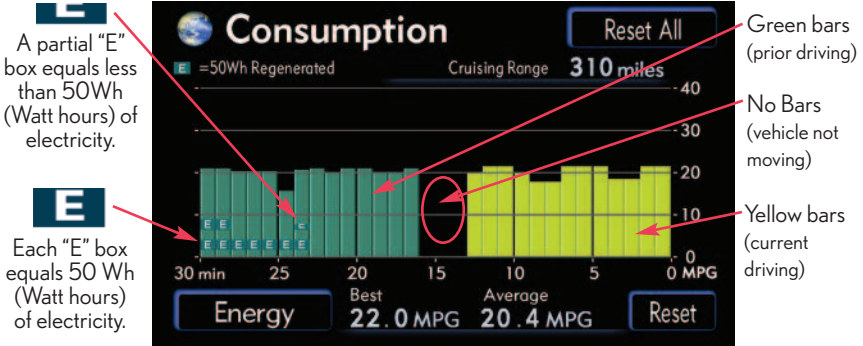
Press to:

- Capture and display Best MPG
- Clear Average MPG Bar Chart
- Clear Regenerated Energy Box Chart
- Clear Average MPG

(continued on next page)

Multi-information Displays & Monitors (continued)

**The Consumption Monitor**



**The Consumption Monitor displays two charts combined into one:**

**Average MPG Bar Chart** - (Green bars - Prior driving, Yellow bars - Current driving) The bars display the average fuel economy in miles per gallon (MPG). The higher the bars reach, the better the fuel economy. Each bar represents the average fuel economy for a 1-minute period. When the vehicle is in "READY" mode, bars showing the 30 minutes of prior driving will be green. Bars that appear during current driving will be yellow. When the vehicle is in "READY" mode but not moving for 1-minute or longer, the chart will move to the left with no bars(s) for that time period. To clear the Average MPG Bar Chart and other displays, press "Reset."

**Regenerated Energy Box Chart** - The small boxes with "E" in the center represent the amount of electricity that has been regenerated in 50 Wh (Watt hour units). A partial box means less than 50 Wh. Each column of stacked boxes represents a 1-minute period. The columns shift to the left every 1 minute. A maximum of four stacked boxes will be displayed in a column for any 1-minute period. The more boxes there are, the more regenerative energy is produced and stored in the hybrid battery. To clear the Regenerated Energy Box Chart and other displays, press "Reset."

**Best MPG Display** - To capture and display the best 1-minute average miles per gallon, press "Reset." The Best MPG display will show the best 1-minute average mpg or the current Best MPG figure, whichever is greater. To clear the Best MPG and other displays, press "Reset All."

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## Multi-information Displays &amp; Monitors (continued)

**The Consumption Monitor (continued)**

**Average MPG Display** - This displays the average fuel economy since "Reset" was last pressed. The average MPG is calculated about every 10 seconds. To clear this and other displays, press "Reset" or "Reset All."

**Cruising Range Display** - This displays the estimated range the vehicle can be driven.

**The Hybrid System Indicator Gauge**

This gauge displays hybrid system output or regeneration level. More fuel efficient driving can be achieved by keeping the needle of the gauge out of the "PWR" zone. The "CHG" zone indicates regeneration status. Regenerated energy will be used to charge the battery.





## LS 600h L Hybrid Technology

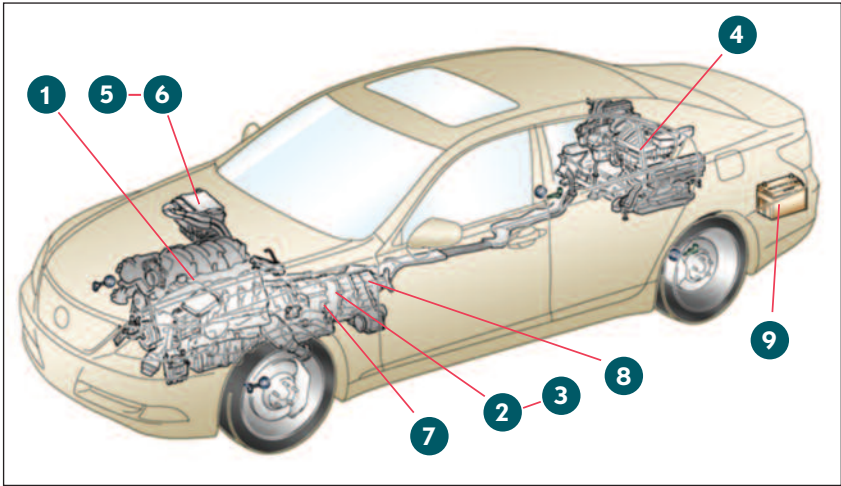
### **Lexus Hybrid Drive basics.**

- **A hybrid vehicle is a vehicle that combines power from different sources to efficiently operate. Lexus has spent many years and logged millions of test miles developing and testing the hybrid technology found in the LS 600h L.**
- **The Lexus Hybrid Drive that powers your Lexus LS 600h L is an advanced system that incorporates the advantages of both electric motors and gasoline engines.**
- **The LS 600h L can be driven on hybrid battery power alone, for short distances at lower speeds, then the engine will start when power is needed to recharge the 12-volt and hybrid batteries, or when driving conditions call for more power.**
- **Lexus Hybrid Drive automatically controls energy usage in the most efficient way possible. The system even captures energy when the vehicle is slowing down.**

**This chapter explains some of the components that make up Lexus Hybrid Drive and their functions.**

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## LS 600h L Hybrid Technology (continued)

**Lexus Hybrid Drive main components**

- 1 **5.0 L 32-V DOHC V-8 Engine with dual VVT-i** - The primary power source for your vehicle, the engine works in conjunction with the hybrid battery to deliver power to the ECVT.
- 2 **Electric Starter Motor/Generator (MG1)** - Serves as the starter motor for the engine and a “pathway” for the engine’s power to reach the wheels.
- 3 **Electric Drive Motor /Generator (MG2)** - Delivers power to the rear wheels. It can run alone or with the engine. It is driven by electrical power from MG1 and/or the hybrid battery. During braking or deceleration, it generates electricity to recharge the hybrid battery.
- 4 **Hybrid Battery** - Composed of sealed nickel-metal hydride modules, the 288-volt hybrid battery is located in the trunk between the rear wheels. It supplies power to the electric drive motor during start-up, acceleration, uphill driving, and reverse. It supplies power to the Inverter for use by the electric motors and stores regenerative energy captured during coasting and braking conditions.

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## LS 600h L Hybrid Technology (continued)

**Lexus Hybrid Drive main components (continued)**

- 5 Inverter** – Converts the hybrid battery's high voltage DC current into AC current for the electric motors and vice versa, depending on driving demands and electrical system needs. The inverter can also boost the hybrid battery's power up to 650 volts as needed.
- 6 Hybrid Electronic Control System** - Monitors and controls the power flow operation of MG1, MG2 and the inverter.
- 7 Regenerative Braking System** – Helps recover energy used to slow the vehicle during braking or coasting. During braking or coasting, MG2 turns into a generator, which creates electricity to help charge the hybrid battery. As MG2 creates electricity, it creates drag, which helps slow the vehicle. The conventional brake system and the regenerative brake system work in conjunction with each other.
- 8 Electronically-controlled Continuously Variable Transmission (ECVT)** – Delivers smooth acceleration without conventional gear shifting, while enhancing efficiency. It has fewer parts than a conventional automatic transmission. MG1 and MG2 are part of the ECVT. The advanced combination of the electric motor/generators and low and high range torque multiplication device helps optimize available performance and economy.
- 9 12-volt Battery** – Enables the Hybrid Electronic Control System to "start" the vehicle (vehicle "READY" mode) and operates the basic electrical system. This battery is charged by the DC/DC converter.

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LS 600h L Hybrid Technology (continued)

## How Lexus Hybrid Drive works

Lexus Hybrid Drive incorporates gas-engine power with electric motor efficiency in a seamless manner.

### Typically, the system works as follows:

#### Starting from a stop

The Electric Drive Motor (MG2) drives the vehicle. The engine is not required to start moving the vehicle, but may come on to charge the hybrid battery or make heat available for the climate control and emissions systems.

#### Normal acceleration

MG2 and the engine drive the vehicle. The engine drives MG1 as a generator to power MG2 and charge the hybrid battery as needed.

#### Full acceleration

The engine and MG2 work together to drive the vehicle. The hybrid battery supplies additional power to MG2.

#### Cruising (constant speed)

Primarily, the engine will drive the vehicle. The engine, MG1 and MG2 will come on as needed depending on road conditions and other factors. MG2 may act as a motor or as a generator, depending on the need to make power or regenerate electricity to recharge the hybrid battery.

#### Coasting and braking

As part of the regenerative braking system, MG2 can act as a generator to regenerate electricity to charge the hybrid battery. The engine may turn off before the vehicle comes to a complete stop.

#### Backing-up

MG2 reverses direction to drive the vehicle. The engine is typically off, unless it is needed to recharge the hybrid battery or warm-up the engine.

#### “EV” drive mode

In EV drive mode, the electric motor, powered by the hybrid battery, is used to drive the vehicle. This mode allows you to drive without concern for exhaust gas emissions at low speeds for approximately a distance of 1/2 mile.

(Please see page 3 for more information.)



## Frequently Asked Questions

**Q: How should I choose between the LS 460 L and a LS 600h L hybrid?**

A: If most of your driving is highway cruising, or you leave your vehicle parked for several weeks at a time, or you need maximum trunk space, the LS 460 L may best meet your needs. If you want maximum acceleration smoothness and responsiveness, plus improved city fuel economy capability, the LS 600h L may best meet your needs.

**Q: What changes to the interior of the LS were required to accommodate Lexus Hybrid Drive for the LS 600h L?**

A: The trunk size has been reduced to make room for the hybrid and 12-volt batteries, and other hybrid system components.

**Q: What is the warranty on the LS 600h L? What is the warranty on the hybrid battery?**

A: In addition to the Basic Warranty of 48-month/50,000 miles and the powertrain and restraint system coverage of 72 months/70,000 miles, there is a hybrid warranty. The Hybrid Vehicle System Warranty is 96 months (8 years)/100,000 miles from the vehicle's in-service date, whichever occurs first. It is applicable to certain components of the hybrid electronic control system and the hybrid battery. See the *Owner's Manual* and other owner information materials in the vehicle for details.

**Q: Does the LS 600h L qualify to be driven as a single-occupant vehicle in the high occupancy vehicle (HOV) lane?**

A: We do not expect the LS 600h L to qualify for the HOV lane. Check with your state department of motor vehicles for more information.

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## Frequently Asked Questions (continued)

**Q: Do you have to charge it/plug it in?**

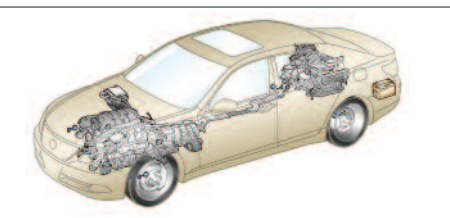
A: The Lexus hybrid technology automatically recharges the 12-volt and hybrid batteries using regenerative braking or by running the engine to generate electricity. However, if the vehicle has been parked for a long time, the 12-volt and the hybrid battery will discharge gradually. To help maintain charge for the 12-volt battery, drive the vehicle at least weekly, operate accessories with vehicle in "READY" mode, and when parking, make sure doors and trunk are closed and lights are turned off. For parking longer than about 30 days, charging of the 12-volt battery may be required. See your dealership for details. If the hybrid battery becomes fully discharged and the vehicle will not start, even with a jump start to the 12-volt battery, contact your Lexus dealership.

**Q: What maintenance is required?**

A: The maintenance requirements are comparable to what a gasoline-powered LS 460 L requires. The hybrid battery and motor/generator do not require ongoing maintenance. However, to keep the hybrid battery in good condition drive the vehicle at least once every several months for at least 30 minutes. Lexus recommends having LS 600h L maintenance and repairs performed by an authorized Lexus dealership. To locate your nearest authorized Lexus dealership, contact Lexus at (800) 255-3987 or log onto **www.lexus.com**. Maintenance and repairs not performed by an authorized Lexus dealership should be performed by a qualified technician following procedures in Lexus service and repair publications.

**Q: What safety standards does the LS 600h L comply with?**

A: Lexus engineers have spent enormous effort to ensure this vehicle meets or exceeds all of the U.S. government's stringent safety standards, as do all Lexus vehicles. See the *Owner's Manual* and other owner information materials in the vehicle for important Safety Precautions.



## LS 600h L Hybrid Drive Specifications

### Hybrid System

Engine Type	5.0L V8 with direct and port injection Super Ultra-Low Emissions Vehicle (SULEV)
Valvetrain	Four cam, four valves per cylinder, with dual Variable Valve Timing with intelligence and electronic intake valve timing (VVTi-LE)
Electric-Drive Motor	Compact, high-output, permanent-magnet electric motor/generator
Hybrid Battery	Sealed, Nickel-Metal Hydride (NiMH) modules, 288-volt
Total System Horsepower	438 hp @ 6,400 rpm (combined engine and hybrid battery)

### Body, dimensions

Curb Weight	5,049 lbs.
Fuel Tank Capacity	22.2 gallons

### Performance

0-60 acceleration <sup>1</sup>	5.5 seconds <sup>3</sup>
Top Track Speed <sup>1</sup>	130 mph <sup>3</sup> (electronically-limited)
Fuel Consumption <sup>2</sup>	20/22 <sup>2</sup> (city/highway estimated)

### Drivetrain

Type	All-wheel drive with TORSEN® Limited Slip Center Differential <sup>4</sup>
Transmission	Electronically-controlled Continuously Variable Transmission (ECVT) with high and low ranges

### Chassis

Brakes	Four-wheel electronic power-assisted discs, with four-sensor, four-channel Anti-lock Braking system (ABS), Brake Assist and Electronic Brakeforce Distribution (EBD), Electronically-controlled Braking System (ECB), available high friction brake pads, and integrated regenerative brake system.
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<sup>1</sup> These performance capacity figures are for comparison only, and were obtained with prototype vehicles by professional drivers using special safety equipment and procedures. These should not be attempted on public streets or highways.

<sup>2</sup> 2008 LS 600h L preliminary mileage estimates determined by Lexus. EPA mileage estimates not available at time of printing. Ratings achieved using the required premium unleaded gasoline with an octane rating of 91 or higher. If premium fuel is not used, performance will decrease. Actual mileage may vary.

<sup>3</sup> Source: Manufacturer's estimate

<sup>4</sup> TORSEN® is a registered trademark of Zexel Torsen, Inc.

## Glossary of Hybrid Technology Terms



### 12-volt Battery

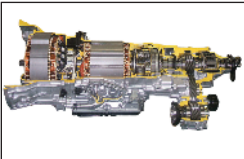
The low-voltage battery that provides electrical power to accessories and the vehicle's computer, similar to the battery of a conventional vehicle.

### AC

Electrical current that reverses its flow in a circuit at regular intervals. The LS 600h L's electric motors operate on AC current.

### DC

Electrical current that flows continuously in one direction. The LS 600h L's hybrid battery and 12-volt battery provide DC current.



### Electronically-controlled Continuously Variable Transmission (ECVT)

A type of transmission with an infinite number of gear ratios that change depending on vehicle speed and engine rpm. As a result, the engine and the motors

operate at their most efficient points regardless of the vehicle's speed.

The ECVT in the LS 600h L provides responsive and smooth performance.

The advanced combination of electric motor/generators and low and high range torque multiplication planetary gearset are part of the ECVT, which has fewer parts than a conventional automatic transmission.

### Engine



In a hybrid vehicle, the word "engine" refers to the gasoline engine, not an electric motor.

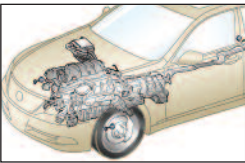
The gasoline-powered 5.0L V8 is the primary power source for the LS 600h L.

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## Glossary of Hybrid Technology Terms (continued)

**Hybrid Battery**

Composed of sealed Nickel-Metal Hydride (NiMH) modules, the 288-volt hybrid battery provides electric motor power during start-up, acceleration, uphill driving, and reverse. It also stores energy captured during regenerative braking. The hybrid battery is covered for 8 years/100,000 miles whichever occurs first. In normal use, we expect the battery to last longer than the length of this warranty.

**Lexus Hybrid Drive**

Lexus hybrid technology that combines an advanced gasoline engine, electric motor/generators, a hybrid battery, an Electronically-controlled Continuously Variable Transmission (ECVT) and advanced electronic controls to provide powerful acceleration, responsive and smooth performance, economy in economy driving conditions, and very clean tailpipe emissions.

**Inverter**

The inverter converts the hybrid battery's high voltage DC current into AC current for the electric motors and vice versa, depending on driving demands and the needs of the electrical system. The inverter can also boost the battery's power up to 650 volts as needed for maximum power.

**kW (Kilowatts)**

A unit of instantaneous electrical power equal to 1000 watts or 1.34 horsepower.

**Motor/Generator (MG1)**

In a hybrid vehicle, the word "motor" refers to an electric motor which works with the vehicle's engine to efficiently drive the vehicle.

The LS 600h L uses permanent magnet AC motors: an electric starter motor/generator (MG1), and an electric drive motor (MG2).

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## Glossary of Hybrid Technology Terms (continued)

**Planetary gear set**

The component of the ECVT that delivers the efficient mix of engine and electric power to the rear wheels.

The operation of the planetary gear set helps provide responsive and smooth acceleration. The LS 600h L

uses a compact, double planetary Ravigneaux-type geartrain to provide low and high drive, to maximize performance or economy in economy driving conditions.

**Regenerative Braking**

Regenerative braking is a feature that allows an electric motor to act as a generator when braking.

It converts the kinetic energy of the car's motion into electrical energy. Whenever the LS 600h L is braking

or slowing, the electrical energy made during regenerative braking is used to recharge the hybrid battery and is measured in Watt Hours (Wh) on the Consumption Monitor screen.

**Volt**

The unit of measure for voltage. Voltage is the electrical pressure which causes current to flow in an electrical circuit.

**Watt**

A unit of electrical power. One watt equals 1/746th horsepower.

**Wh (Watt hours)**

Electrical power used, or in the case of the LS 600h L, regenerated and measured in terms of time.



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Specifications, features, equipment, technical data, performance figures, options, and color and trim are based upon information available at time of printing, are subject to change without notice, are for continental USA vehicles only. Some vehicles may be shown with optional equipment. Optional equipment listed may not be available separately or in all regions. Technical photos and illustrations are from Lexus Technical Training and other photos are from CJE Automotive Marketing under contract with Lexus Product Coordination.



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